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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/740,708	12/19/2000	George D. Chandley	GM142	5022

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EXAMINER

MORILLO, JANELLE A

ART UNIT PAPER NUMBER

1742

DATE MAILED: 02/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Advisory Action**

Application No.

09/740,708

Applicant(s)

CHANDLEY ET AL.

Examiner

Janelle Combs-Morillo

Art Unit

1742

--The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

THE REPLY FILED 30 January 2004 FAILS TO PLACE THIS APPLICATION IN CONDITION FOR ALLOWANCE. Therefore, further action by the applicant is required to avoid abandonment of this application. A proper reply to a final rejection under 37 CFR 1.113 may only be either: (1) a timely filed amendment which places the application in condition for allowance; (2) a timely filed Notice of Appeal (with appeal fee); or (3) a timely filed Request for Continued Examination (RCE) in compliance with 37 CFR 1.114.

**PERIOD FOR REPLY [check either a) or b)]**

- a) ☒ The period for reply expires 3 months from the mailing date of the final rejection.
- b) ☐ The period for reply expires on: (1) the mailing date of this Advisory Action, or (2) the date set forth in the final rejection, whichever is later. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of the final rejection. ONLY CHECK THIS BOX WHEN THE FIRST REPLY WAS FILED WITHIN TWO MONTHS OF THE FINAL REJECTION. See MPEP 706.07(f).

Extensions of time may be obtained under 37 CFR 1.136(a). The date on which the petition under 37 CFR 1.136(a) and the appropriate extension fee have been filed is the date for purposes of determining the period of extension and the corresponding amount of the fee. The appropriate extension fee under 37 CFR 1.17(a) is calculated from: (1) the expiration date of the shortened statutory period for reply originally set in the final Office action; or (2) as set forth in (b) above, if checked. Any reply received by the Office later than three months after the mailing date of the final rejection, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

1. ☐ A Notice of Appeal was filed on \_\_\_\_\_. Appellant's Brief must be filed within the period set forth in 37 CFR 1.192(a), or any extension thereof (37 CFR 1.191(d)), to avoid dismissal of the appeal.
2. ☐ The proposed amendment(s) will not be entered because:
- (a) ☐ they raise new issues that would require further consideration and/or search (see NOTE below);
  - (b) ☐ they raise the issue of new matter (see Note below);
  - (c) ☐ they are not deemed to place the application in better form for appeal by materially reducing or simplifying the issues for appeal; and/or
  - (d) ☐ they present additional claims without canceling a corresponding number of finally rejected claims.

NOTE: \_\_\_\_\_

3. ☐ Applicant's reply has overcome the following rejection(s): \_\_\_\_\_.
4. ☐ Newly proposed or amended claim(s) \_\_\_\_\_ would be allowable if submitted in a separate, timely filed amendment canceling the non-allowable claim(s).
5. ☒ The a) ☐ affidavit, b) ☐ exhibit, or c) ☒ request for reconsideration has been considered but does NOT place the application in condition for allowance because: See Continuation Sheet.
6. ☐ The affidavit or exhibit will NOT be considered because it is not directed SOLELY to issues which were newly raised by the Examiner in the final rejection.
7. ☒ For purposes of Appeal, the proposed amendment(s) a) ☐ will not be entered or b) ☒ will be entered and an explanation of how the new or amended claims would be rejected is provided below or appended.

The status of the claim(s) is (or will be) as follows:

Claim(s) allowed: \_\_\_\_\_

Claim(s) objected to: \_\_\_\_\_

Claim(s) rejected: 10-24.Claim(s) withdrawn from consideration: 1-9.

8. ☐ The drawing correction filed on \_\_\_\_\_ is a) ☐ approved or b) ☐ disapproved by the Examiner.
9. ☐ Note the attached Information Disclosure Statement(s) (PTO-1449) Paper No(s). \_\_\_\_\_
10. ☐ Other: \_\_\_\_\_

Continuation of 5. does NOT place the application in condition for allowance because: The argument that the prior art does not teach or provide motivation to add a rare earth element to TiAl alloy in order to prolong the resistance to attack by molten aluminum, has not been found persuasive. The argument that WO'973 and Nazmy are not combinable, can be arrived at through only hindsight, or that there is no motivation to modify the claims of US 6,238,195 in view of Nazmy, has not been found persuasive. Nazmy teaches (see examples 21 and 23, Fig. 3, column 3 lines 43, 47) that TiAl alloys with added Yttrium (a rare earth element) maintain excellent strength and hardness at very high temperatures (>> than the melting point of molten aluminum). Fig. 7 of Nazmy shows that alloys 21 and 23 exhibit a LARGE improvement in strength over TiAl alloys with no additions (alloys 1 and 2). Clearly, there is strong motivation to add a rare earth element to TiAl alloys in order to improve high temperature strength for TiAl alloy machine components intended for contacting molten aluminum (WO'973 page 2 lines 6-7).

Applicant's argument that the mechanical property data of the TiAl alloy with added Y (presumably tests conducted in air) given by Nazmy cannot be used to predict the temperature resistance of a TiAl alloy with added Y contacted with molten aluminum has not been found persuasive. Both WO'973 and Nazmy are drawn to the field of high temperature TiAl alloys intended for machine components (Nazmy at abstract, WO'973 at abstract), wherein WO'973 teaches machine components such as mixing blades (page 2 line 10) for contacting molten aluminum (page 2 lines 6-7). Furthermore, Nazmy teaches the addition of said Yttrium enables the field of application (which is machine components) of the modified Ti-Al alloys to be extended to temperatures between 600-1000C (column 14 lines 52-54). One of skill in the art would therefore be motivated to use said high strength TiAl alloy with added Y for various machine components, including mixing blades for contacting with molten aluminum, as taught by the main reference WO'973, due to the DRAMATIC increase in strength at high temperature taught by Nazmy (see Nazmy Fig. 7, etc.).

The argument that there is no motivation to select Y from the group of elements listed in Nazmy has not been found persuasive. Nazmy teaches examples with added Y (see alloy 21 and 23), and graphs that show that adding Yttrium to a gamma phase Ti-Al alloy provides for excellent hardness and strength at high temperatures (Fig. 3 and Fig. 7 examples 21 and 23, see column 3 lines 43, 47, column 4 lines 32-34).

The argument that the instant invention is allowable because the prior art does not teach item b) of paragraph 3 as seen in the final rejection, has not been found persuasive. Applicant argues that Choudhury teaches at column 1 lines 20-26 molten metals and alloys to be melted and cast in molds. Even so, the examiner asserts that it is conventional in the art to inspect and clean molds when necessary (column 7 lines 3-4). It would have been obvious to one of ordinary skill in the art to clean (as taught by Choudhury) the TiAl with added RE metal mold taught by WO'973 and Nazmy, because Choudhury teaches that such cleaning and inspecting are conventional, and done whenever necessary. Changes in temperature, concentrations, or other process conditions of an old process does not impart patentability unless the recited ranges are critical, i.e. they produce a new and unexpected result. However, said parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977), See also In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Because cleaning and inspecting molds when necessary are held to be result effective variables, wherein the recognized result is a clean mold (as taught by Choudhury see col. 7 lines 3-4), it is held that the determination of the optimum or workable ranges of said variables is characterized as routine experimentation.

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